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Another Neolithic in Holocene Japan

Masaki Nishida

Institute of History and anthropology, The University of Tsukuba
nishida@histanth.tsukuba.ac.jp

ABSTRACT – *In the Japanese Islands, small sedentary villages sustained by hunting, gathering, fishing and cultivation emerged around 10 000 years ago. This life style of the Jomon people continued for around 7000 years without any drastic changes in material culture, subsistence strategy and village size until the diffusion of continental civilization into Japan approximately 2500 years ago. This indicates that the incipient sedentary society of the Jomon Period was very stable, a state which is not indicative of civilized society after that time. After the prehistoric situation in Japan, we are able to classify sedentary society into two phases; sedentism with stability and sedentism with instability (civilized society). Therefore it is possible to say that the emergence of sedentism and cultivation are not direct factors which promote the emergence of civilization.*

IZVLEČEK – *Na japonskem otočju so se pred okoli 10 000 leti pojavile majhne, stano naseljene vasi, ki so se preživljale z lovom, nabiralništvom, ribolovom in obdelovanjem zemlje. Ta življenjski stil ljudstva Jomon se je nadaljeval okoli 7000 let brez večjih sprememb v materialni kulturi, načinu preživljanja in velikosti vasi, dokler ni prišlo do difuzije kontinentalne civilizacije na Japonsko pred okoli 2500 leti. To kaže, da je bila prvotna stalno naseljena družba obdobja Jomon zelo stabilna, kar za civilizirano družbo po tem času ni bilo značilno. V prazgodovini na Japonskem lahko stalno naseljeno družbo ločimo na dve fazi; stalna naseljenost s stabilnostjo in stalna naseljenost z nestabilnostjo (civilizirana družba). Zato je mogoče reči, da pojav stalne naseljenosti in obdelovanja zemlja nista neposredno povezana s pojavom civilizacije.*

KEY WORDS – *sedentism; Jomon period; Neolithic; stability; insatiability; civilization*

INTRODUCTION

The Neolithic in Europe, West Asia and China is characterized by farming, pottery and sedentism, with these aspects considered to be the basis of civilized society. Pottery first appeared in the Japanese Archipelago around 13 000 years ago, with sedentary villages appearing at around 10 000 years ago (Fig. 1). However, agricultural practices did not begin until 2500 years ago (Imamura 1996). The period immediately before agriculture began is called the Jomon period. There are some similarities in lifestyle patterns and time span between the Neolithic and Jomon periods; however, the Jomon people did not practice agriculture.

Many Japanese archaeologists believe that the presence of cereal agriculture is the most important ele-

ment of the Neolithic culture of the Eurasian continent, and for this reason consider the Jomon period different from the Neolithic period. Consequently, comparative research of both periods is not well developed and research on the Jomon period has been isolated from prehistoric research in general.

If we analyse the artifacts of the Jomon period we can easily understand that the subsistence activities of the Jomon period are characterized by hunting, gathering and fishing. The presence of well constructed houses and refuse heaps indicates the sedentisation of this period. However, until recently there was little recognition by Japanese archaeologists that sedentism was an established characteristic of the Jomon period. The reason it took Japanese re-

searchers so long to recognize this fact is that they were influenced by the theory of the Neolithic revolution and considered it difficult to believe that the people who subsisted by fishing, hunting and gathering during the Jomon period could also maintain a sedentary lifestyle.

In addition, a strong traditional belief held within Japan is that Japanese culture is based on rice farming. For this reason, the Japanese people believe the roots of Japanese culture began in the Yayoi period, because the Jomon lifestyle, based on fishing, gathering and hunting is, considered unstable.

The image and historical interpretation of the Jomon period has changed dramatically in the last twenty years. This is partly due to the fact that the design and beauty of Jomon pottery has been recognized. The excavation of gourd and hemp remains, which were useful for daily living activities, have been found at Jomon sites even though these species are not indigenous to Japan. In addition, there is evidence that chestnuts, one of the major foods of the Jomon people were cultivated. The excavation of timber posts nearly one meter in diameter, and beautiful lacquer ware indicates highly advanced technology. These are some of the reasons the image and historical interpretation of the Jomon period changed.

Recently, the richness of the Jomon period has been exaggerated, in tandem with claims that the roots of Japanese culture extend back to the Jomon period. By incorporating the advanced nature of the Jomon period into Japanese history it is possible to extend further the roots of Japanese society by more than 10 000 years. This manipulation of historical perspective is necessary for the creation of civilized Japanese society. Civilized societies manipulate historical interpretations of the past to their own advantage. For this reason, it is very important to eliminate nationalism and the way of looking at history from the viewpoint of modern civilized societies in the study of the Jomon and Neolithic periods.

To remove this focus from Neolithic and Jomon studies it is necessary to do three things:

- ① Increase comparative research on the Jomon and Neolithic cultures.
- ② Eliminate the historical viewpoint of looking at past societies as the roots of specific nations or civilizations.

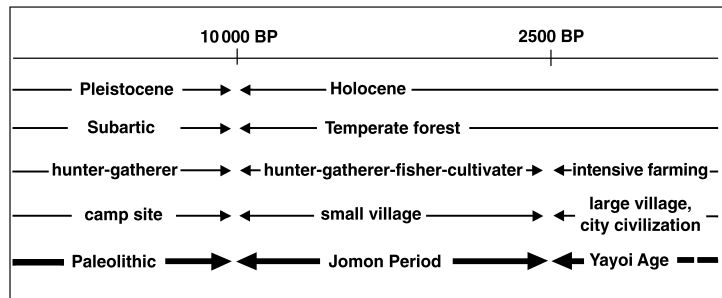


Fig. 1. Prehistory of Japanese Archipelago.

- ③ Use an ecological perspective to understand past societies from their survival strategies.

In this paper I am going to give an overview of Jomon society and discuss new perspectives for a comparative study between the Jomon period in the Japanese Islands and the Neolithic on the continent of Eurasia.

The Jomon peoples lifestyle which incorporated hunting, gathering, fishing and cultivation did not change for 7500 years. The absence of constant population growth indicates that Jomon society was very stable (Koyama 1987). In spite of this fact, many Japanese archaeologists have tried to periodise Jomon society and give meaning to the differences instead of understanding that the Jomon period was a stable society that did not undergo big and drastic changes.

This interpretation is based on historical research methods and looks at social and cultural change processes. Change in civilized societies can cause instability, in contrast with simple societies, which do not undergo drastic changes. Therefore, it is not helpful to do research on simple societies using historical viewpoints or perspectives. If we wish to understand the unchanged nature of Jomon society, we have to focus on how this stability was established. We have to focus on the socio-ecological mechanisms which enabled the stability of the Jomon period to continue for such a long time.

If we focus on the reasons for the stability of Jomon society, we can re-evaluate the Neolithic period of Europe, China and West Asia. If the Neolithic period is considered the starting point of civilized societies, then this also marks the point at which these societies began to lose their stability. Therefore, the main task of my research is to clarify why Neolithic societies lost their stability and developed into civilized societies. This question contributes to a better understanding of the instability of civilized societies.

LIFE DURING THE JOMON PERIOD

Many houses during the Jomon period were of pit house construction and used thick wooden posts as support structures. From Jomon village sites many pottery sherds and heavy stone cooking implements have been excavated. In those sites where preservation conditions are good, the remains of food have been recovered. In addition, the presence of refuse heaps indicates that cleanliness was important. These characteristics are not found in Palaeolithic sites and are major indicators of the sedentisation of villages during this period.

Sedentised villages appeared in the southern part of the Japanese Archipelago at around 10 000 years ago. This lifestyle did not appear in the north of Japan until thousands of years later. This time lag represents the period when sedentisation followed the spread of the temperate forest environment from the south to the north of the Japanese archipelago. This indicates that the sedentary lifestyle of the Jomon period emerged as an adaptive process to the temperate forest environment.

The Japanese Archipelago was covered with sub-arctic tundra during the ice age, and many stone tools used for hunting have been excavated. However, during the Holocene the archipelago was covered with temperate dense forest. Flora and fauna changed, as did the environmental conditions under which hunting could be practiced. The existence of dense forest meant that animals were no longer clearly visible, making hunting more difficult. Under such conditions the techniques and lifestyle of the Jomon period was formed.

Jomon subsistence and technology

I will explain Jomon subsistence and technology with reference to those sites at which I assisted in the excavation process. The Torihama site is located next to a shallow lake, therefore refuse and debris which were excavated from the bottom of the lake were well preserved. I analysed the kitchen refuse, seeds and charcoal from this site.

Hunting

Deer and wild boar were the most important animals hunted during the Jomon period (*Nishida 1980*). They comprise 95% of the faunal remains at the Torihama site. The analysis of teeth recovered from the site indicates that wild pigs were hunted in win-

ter and deer were hunted all year round. Other faunal remains include bear, monkey, hare, fox, otter, wolf, and lynx in smaller quantities. The presence of animal hides from the above species at the site suggests that the hunting season for these types of animals was limited to winter. Small quantities of geese bones were also excavated. These birds were also hunted in winter, as geese typically migrate during the winter months.

Gathering

Walnuts, acorns, chestnuts and water chestnuts were excavated in large quantities from the Torihama site. These nuts are gathered in autumn and may be preserved to use during other seasons. Therefore, these nuts constituted an important food source for the Jomon people. The collection of nuts is an activity that anyone can do. Wild fruit seeds were also excavated, but their nutritional importance is not clear. In addition, the use of wild vegetables, mushrooms and wild yams is assumed; however there are few records from Jomon sites.

Fishing

Fishing was an important subsistence activity of the Jomon period. Various species of fish bones were excavated from the Torihama site. It is more than 10 kilometers from the Torihama site to the ocean. In winter a strong wind blows from the north, increasing wave height and making fishing from a boat very dangerous. Therefore, lake and ocean fishing would have been considered a summer activity.

Shell collection

Around 30 species of freshwater and marine shells were excavated from the Torihama site. Using growth line analysis it is estimated that these shells were collected in spring, summer and autumn. Shells constituted the most prolific and visible food debris found in the Torihama sediment; however, calculations suggest that the caloric value rate of shellfish was not so high.

Farming

An explanation is necessary to understand the farming practiced during the Jomon period, as no direct evidence, such as domesticated plant remains, traces of farmland or farming implements, have been recovered from Jomon sites.

During the Jomon period several species of useful plants were introduced to the Japanese Islands and utilized in daily life. They are: gourd (*Lagenaria siceraria*): liquid container, edible seed. Hemp (*Cannabis sativa*): fibre, narcotic drug, and edible seed. *Perilla frutescens* Britten (*Perilla frutescens*): cooking oil, solvent used for urushi lacquer, edible seed. Urushi (*Rhus veriniciflua*): lacquer. Kajinoki (*Broussonetia kazinoki*): fibre, bark cloth, sweet berry.

These plants are not indigenous to Japan and could not grow successfully in the natural Japanese forest environment. We estimate that these species were planted and nurtured by Jomon people in disturbed artificial vegetation areas near villages.

There is clear evidence from seed and charcoal analysis that suggests Jomon villages were surrounded by disturbed secondary vegetation areas (Nishida 1983). Firstly, many kinds of seeds of sun loving plants, which cannot flourish in shady areas, were excavated from the Torihama site. Secondly, charcoal from chestnut trees is the most common component at many Jomon sites. This indicates that chestnuts were used as firewood. Chestnut trees are also sun-loving plants which cannot grow in dense forest.

Artificial secondary vegetation areas of forest and grass fields were formed around Jomon villages because people cut down trees for building houses, making tools, and firewood. Even if the chestnuts were originally wild species, and in spite of primitive planting methods, these chestnuts were the products of a artificial vegetation. The Jomon people consumed large quantities of chestnuts, which were a product of this artificial field.

It is estimated that the cost of planting, collecting and transporting these kinds of chestnuts was minimal because the procurement area was close to the village. This close proximity was advantageous in terms of restricting potential competition with bears, deer, wild pig and monkeys, as these animals would have been wary of foraging close to human occupation areas.

The cutting down of trees for firewood and house building influenced the kinds of plants found around the sedentised villages. This disturbance of the natural vegetation ensured that an artificial environment automatically emerged around Jomon villages. The humidity of the Japanese archipelago ensured that chestnuts and other sun-loving plants increased in these disturbed areas. The nurturing of these areas of sun-loving plants by human beings necessitated

the selective procurement of firewood so as not to cut down those trees used for subsistence purposes.

From the Yayoi period onwards paddy planting required people to cultivate, seedlings and weeding, as well as pipes and irrigation to control the water flow. Compared to such advanced planting methods the primitive planting methods of the Jomon period were not labour intensive. In contrast, the cost performance of labour during the Yayoi period must have been very high.

Village and houses

In many village sites a cemetery was found close to the village. In some cases it was located at the centre of the settlement. From some sites tomb stones were excavated in an upright position indicating the importance of marking these burial places to the people.

Jomon people created sedentary villages and collected most of their food and other resources in close proximity to these areas. To maintain specific areas surrounding the villages was a most important survival strategy. The people of the villages must have succeeded or inherited these areas from their ancestors, and the tombs of their ancestors built near the villages may have been symbols of rights to land. The existence of visible tombs from the Jomon period indicates that lineal descent and land transfer were practiced during this time.

Sedentisation

The people of the Jomon period practiced fishing, gathering, hunting, produced pottery and polished ground axes, stored food and lived in small sedentary villages. In contrast, Palaeolithic societies specialized in hunting, with the ability for high mobilization. The sedentary society of the Jomon period was a generalist one where people utilized many different kinds of resources. This is the same for Western Asia during the initial period of sedentisation when subsistence was diversified and focused on broad-spectrum subsistence activities (Flannery 1965). There are several reasons for utilizing broad-spectrum subsistence strategies during the initial period of sedentisation:

- ① Utilizing a broad spectrum of food resources, villagers could collect enough food within a relatively short distance village, which reduces the labor costs of subsistence activities.
- ② Utilizing this type of subsistence strategy meant that sedentary villages were able to maintain a

much higher population rate than Palaeolithic societies.

- ③ Sedentary villagers started eating certain types of food which had not been consumed previously, indicating that they had moved on to less desirable or secondary food sources.

These three points show the correlation between the increase in population rate and sedentisation. In West Asia, China and Japan, the most important food that human beings started eating as sedentisation began was small seeds, like cereals, rice, chestnuts and acorns, which contain a lot of starch. And there is no recorded usage prior to this time. The reason for this is simple. These seeds are small and covered with a hard shell, and the edible parts are so hard that they cannot be eaten without being cooked. Some acorns, which contain tannin, cannot be eaten without leaching. To remove the hard shell from small seeds, and leaching then cooking them requires much time and energy. Up until this time the kinds of animals and root vegetables which had been consumed by human beings did not require such thorough cooking or processing. It was very easy to cook these foods over a small campfire.

It is easy to process small starchy seeds effectively using implements such as millstones, grindstones, pottery or ovens. However, preparation and usage of heavy implements or tools and also the preservation of large quantities of food at harvest time does not fit with a nomadic lifestyle. For the nomads of the Palaeolithic cereals and acorns were a food for animals and birds, not for human beings.

The ancestors of human beings carried out a nomadic lifestyle for millions of years. Frequent movement or migration was a beneficial adaptation for apes and other larger mammals. Constant movement of camps must have been the normal pattern of life for people in the Palaeolithic, with the decision to sedentise being a second choice.

Sedentisation and eating small starchy seeds were secondary choices for the people of the Palaeolithic, compared to an established nomadic lifestyle. The crisis situation which forced this change needs to be investigated.

The Holocene crisis

Like wolves and tigers, people of the mid latitude environments during the Palaeolithic specialized in hunting and food selection. In order to use their en-

vironment like wolves and tigers, they had to maintain a low population density so as not to over extend the carrying capacity of their territory. However, by 15 000 years ago human beings had extended their living territory up to the northern end of the Eurasian continent. The human penetration of such a harsh environment suggests a higher population density than that of prior nomadic hunting and gathering societies. Under these conditions human beings experienced a big climatic change.

Even if human penetration of the north occurred as a result of rising global temperatures, such a move may not have been problematic. By the end of the last ice age, human population already extended to the north of the Eurasian continent, which meant that there was no more space to go north. Europe, Western Asia, China and Japan where sedentisation occurred, were areas which experienced a climatic change from the sub arctic environment of tundra and coniferous forest to a warm temperate forest environment. The change from an open-land to a dense forested environment meant that the hunting techniques of the Palaeolithic were no longer effective. Under such conditions survival strategies needed to be re-assessed.

In warm temperate forest environments different types of starchy seeds in large quantities flourished. They were easy to collect and had a high caloric value. These are hard to process but if processed with heavy tools and stored in large quantities, they can be eaten at any time. This response to the crisis made migration difficult and led to sedentisation.

Chestnuts or cereals

In Eastern Asia, cereal cultivation developed, and in the Japanese archipelago, chestnuts were cultivated. The differences derive from the early stages of these two areas. During the Holocene, the Japanese archipelago was surrounded by ocean, experienced a high degree of rainfall throughout the year, and was deeply forested, with the exception of high mountainous areas. This type of environment is not suitable for cereal cultivation. Even if the villagers cut down trees for building or firewood the disturbed areas were not invaded by gramineous plants, but became secondary forest environment.

In West Asia and China the warm temperate forest area was next to the dry grassland area of the interior region. In such marginal forest areas, much more gramineous plant flourished, and when the trees

were cut down the vegetation easily reverted to gramineous grassland. Domestication of gramineous plants might start under such conditions.

The ecological process for the emergence of cultivation might be almost same for rice, wheat and chestnut, but the process for the emergence of cultigens is quite different. Firstly, domesticated gramineous plants are annual grasses, whereas chestnuts are not, which means that the rate of genetic change is quite different. Secondly, most of the gramineous plants are self-fertilizing, whereas chestnuts require cross-fertilization. Thus even if the initial cultivator selected fine cultigens, it is hard to keep it to the next generation without grafting techniques.

Cereal plants tend to become cultigens; however, chestnut cultivation encompasses techniques for nutritious growth. Once the cultivation of gramineous plants began, new types of cultivation emerged. Chestnut cultivation encompassed managing wild types only. Due to these factors, cultivation during the Jomon period has not been understood well until recently.

Civilized society emerged in Western Asia and China where gramineous plants were cultivated. For this reason, the cultivation of gramineous plants is considered to be the basic factor for the emergence of civilizations. This is the biased idea of ancient legend. For example, according to the legends of ancient Japan, human beings received rice seeds from God, began rice cultivation and created a nation. Rice was considered to have the mysterious power to form a nation.

At the same time, people argue that an increase in the production of crops and creation of a surplus leads to civilized society. In this argument, mystical power was correlated with the power of production of a surplus. This idea is a mere transformation of legends. Rice as a crop itself does not change the rate of increase in production, nor produce surplus food.

Intensification of production

In Western Asia and China during the Neolithic, intensive cultivation and specialized practices were developed, and these elements are considered important stages for the development of civilized societies (Fig. 2). On the other hand, during the Jomon period cultivation occurred, but was not specialized, and at the same time fishing, hunting and gathering were

actively pursued. To carry out such subsistence activities there are costs and benefits.

The fact that hunting, gathering and fishing were practiced during the Jomon period is attributed to the rich natural resources of that time. Villages of the Jomon period were relatively small and were located near rivers, lakeside and ocean. Villages maintained a low population density, which was essential from an ecological viewpoint to maintain the level of subsistence activity carried out.

Hunting, gathering and fishing activities do not require the high labour costs associated with pastoralism, intensive cultivation and production or factories. These natural resources reproduce according to natural cycles, and people collected produce when needed. It is natural for hunter-gatherer societies to maintain a food supply with small labor costs.

We can assume that hunting, gathering and fishing activities were pleasurable for prehistoric people. Hunting, gathering and fishing activities in modern society are weekend hobbies because these activities are more pleasant than farming or office work. The patterns of subsistence activities in the Jomon period must have had benefits in terms of labor cost and quality.

In Jomon villages chestnuts were cultivated; however, people also collected large quantities of acorns and water chestnuts, which flourish in the primary vegetation. If people can collect sufficient to fulfil dietary needs, much more chestnut cultivation would not have been necessary. Labor costs associated with chestnut cultivation must have been the same or less than that of the gathering in the primary forest. In Jomon society there was no need for surplus production.

To maintain the rich natural resource balance it was necessary to control population growth and resource

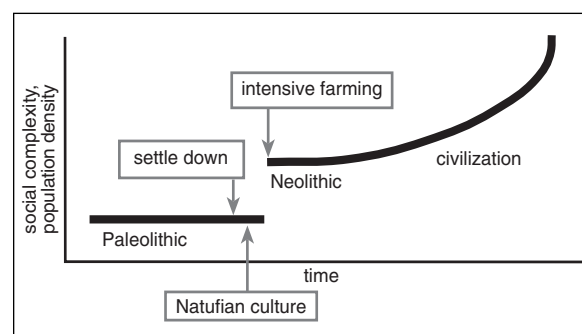


Fig. 2. Neolithic model.

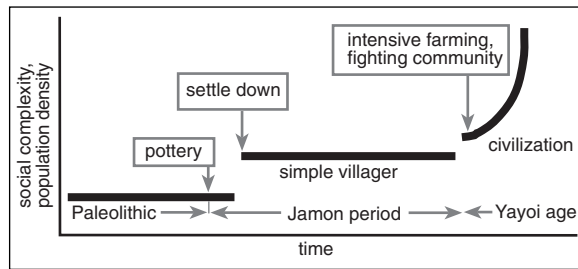


Fig. 3. Jomon model.

collection. It is natural for hunter-gatherer societies which depend on natural resources to be concerned about the consumption of such resources. Such attitudes of self-restriction enabled population control.

The fact that Jomon villages were small-scale indicates less conflict amongst villages. If larger villages tried to control smaller ones, all the villages would have tried to increase their power to influence other villages. This phenomenon was not found in the Jomon period. The low population density during the Jomon period was maintained so as to control social conflict over natural resources and space.

On the other hand, during the Neolithic age of West Asia and Europe the scale and density of villages increased, and intensive and specialized cultivation developed. The rich natural environment of the hunter-gatherer period decreased and food production was intensified. The reason behind such changes must have been due to population increase and social conflict.

As population and social conflict increased, more armies, weapons and land were required, leading to further population increase and conflict. Once this cyclic process began, population and community size increased, and weapons and war technology became more developed. These are the characteristics of the historical era.

The beginning of civilization is identified archaeologically by an increase in the scale of villages, the intensification and specialization of cultivation, the emergence of military fortifications, and the development of military technology (Fig. 3). These elements are found within the Yayoi period in the Japanese archipelago, but not within the Jomon period.

Jomon societies were sedentary societies with a high degree of stability, whereas societies after the Yayoi were unstable. The difference between the two periods is quite marked. If we consider the aforementioned points we can look at West Asian prehistoric re-

search and draw some conclusions. One is about the beginning of sedentary societies in the Mediterranean and the understanding of Natufian culture.

According to research on Natufian culture, the Natufians were hunters, gatherers and fishers, and lived in small-scale sedentary villages, and they collected wild cereals. Gramineous plants are sun-loving plants, and wild barley must have been growing in secondary vegetation near Natufian villages. If human beings created the artificial environment in which wild plants grew, then people consumed them, the reciprocal relationship between plants and humans was established. It is not gathering, but cultivation.

It is hard to understand why Natufian culture was regarded as an epi-palaeolithic culture. The survival strategies of sedentary and nomadic societies are different. In nomadic societies there is frequent changing of campsites in response to the carrying capacity of the land, environmental changes and dangerous social trouble. Nomadic societies are characterized by frequent migration in response to inconveniences, whereas sedentary societies adapt to inconveniences within their villages.

Frequent migration is a long historical tradition, which lasted for millions of years through the history of apes and human beings. When the tradition of a nomadic way of life was abandoned, sedentary society, which is different from the living patterns of the great apes, emerged. This change is the most significant event in the evolutionary history of apes and human beings. It is wrong to conclude that the Natufian culture is epi-palaeolithic.

Natufian culture did not last longer than the Jomon period. During the Natufian period there was no increase in village scale, the development of military fortifications or intensification of cultivation, so Natufian society must have been as stable as Jomon society, and thus can be distinguished from the unstable civilized societies of the Neolithic.

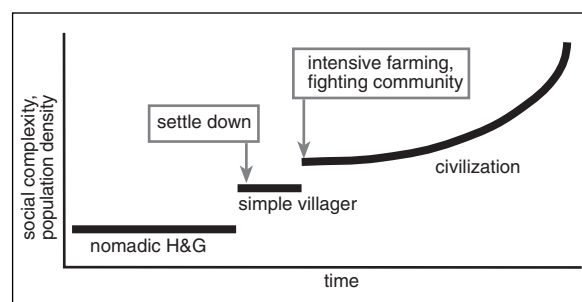


Fig. 4. General model.

Nomadic hunter-gatherer societies, Jomon or simple sedentary societies, including Natufian culture, and civilized societies all have their own characteristics and existed over large areas and long period. Nomadic hunter-gatherers societies existed in all parts of the world until 10 000 years ago. Simple sedentary societies emerged in temperate forested areas around

10 000 ago. This type of society existed in wide areas of humid tropical Asia and Africa just before the occupation of civilized society. Now, civilized societies exist all over the earth and have expanded globally; however, all types of societies are important. These three types of societies should be identified clearly in the history of humankind, as shown in Figure 4.

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